

c.) Amendment to the Claims

1. (Currently Amended) A retroreflective article comprising plural triangular-pyramidal cube-corner retroreflective element pairs formed of parallel V-shaped groove groups (x, x, x,..., y, y, y,..., and z, z, z,...) from three directions of x direction, y direction, and z direction and set on a common plane (S-S') ~~decided~~ defined by base line groups of the parallel V-shaped groove groups, in which

one-side groove angle (GLx, GRx, GLy, GRy, GLz, or GRz) formed between

a cross line between

~~a plane vertical to the common plane (S-S') and a V-groove vertical plane (Svx, Svy, or Svz) which includes the base line of a V-shaped groove and perpendicular to said the common plane (S-S'), and a reflective lateral face (a1, b1, c1, a2, b2, or c2);~~ a plane vertical to the common plane (S-S') and to a V-groove vertical plane (Svx, Svy, or Svz) which includes the base line of a V-shaped groove and is vertical to the common plane (S-S'), and a reflective lateral face (a1, b1, c1, a2, b2, or c2) containing the base line of the V-shaped groove

and the V-groove vertical plane

does not form a constant angle in the reflective lateral face but the lateral face forms a curved and/or multiple surface.

2. (Previously Presented) The retroreflective article according to claim 1, wherein at least one reflective lateral face for constituting the triangular-pyramidal cube-corner retroreflective element pairs, the one-side groove angle (GLx, GRx, GLy, GRy, GRz, or GRz) does not form a constant angle with the maximum deviation of 0.0001 to 0.1° from a normal one-side groove angle for forming a cube corner and a reflective lateral face forms a curved and/or multiple surface.

3. (Previously Presented) A retroreflective article according to claim 1 or 2, wherein the internal angle of one of bottom-plane triangles formed of three bottom planes constituting the reflective elements ranges between 35 and 75°.

4. (Previously Presented) The retroreflective article according to claim 3, wherein the internal angle of one of bottom-plane triangles formed of three base lines constituting the reflective elements ranges between 45 and 70°.

5. (Previously Presented) The retroreflective article according to claim 4, wherein the depth of a plane (Sx, Sy, or Sz) formed by the base line group of at least one-directional V-shaped groove constituting the reflective elements is different from the depth of other planes.

6. (Previously Presented) The retroreflective article according to claim 5, wherein an x-directional V-shaped groove constituting the reflective elements does not pass through the intersects (A and B) of y- and z-directional V-shaped grooves and is formed at a position having an offset (Δx) from a straight line connecting intersects A and B, the triangular-pyramidal cube-corner retroreflective element pairs are asymmetric pairs.

7. (Withdrawn) A retroreflective article comprising plural triangular-pyramidal cube-corner retroreflective element pairs formed of V-shaped groove groups (x, x, x,..., y, y, y,..., and z, z, z,...) arranged at equal intervals from three directions and set on a common plane (S-S') decided by base line groups of the V-shaped groove groups, in which the base line constituting any-directional V-shaped groove in the retroreflective element pairs is a nonlinear base line which does not form a linear trajectory and the reflective lateral face formed of the V-shaped groove forms a curved and/or multiple surface.

8. (Withdrawn) The retroreflective article according to claim 7, wherein a nonlinear factor (f_x , f_y , or f_z) specified by the maximum distance between the intersect of a vertical line from the both-end straight line connecting both ends of the nonlinear base line to the nonlinear base line and the nonlinear side and the both-end

straight line ranges between $0.0001L$ and $0.05L$ when assuming the length of the both-end straight line as L .

9. (Withdrawn) The retroreflective article according to claim 7 or 8, wherein the trajectory of the nonlinear base line includes at least one curved line selected from a function obtained from a circular arc, trigonometric function (sine curve, cosine curve, or tangent curve), inverse trigonometric function, elliptic function, hyperbolic function, and function obtained by combining any of these functions.

10. (Withdrawn) The retroreflective article according to claim 7 or 8, wherein the trajectory of the nonlinear base line is shown by a broken line obtained by combining straight lines.

11. (Withdrawn) The retroreflective article according to claim 9, wherein a one-side groove angle (GL_x , GR_x , GL_y , GR_y , GL_z , or GR_z) formed of a line decided when a plane vertically intersecting with the both-end straight line intersects with the reflective lateral face and a V-groove vertical plane (U_x , U_y , or U_z) vertical to a common plane ($S-S'$) and including the both-end straight line do not form a constant angle with the maximum deviation of 0.0001 to 0.1° from a normal one-side groove angle for forming a cube corner or a reflective lateral face does not form a plane.

12. (Withdrawn and Currently Amended) The retroreflective article according to claim 11, wherein ~~characterized in that~~ an internal angle of a base line triangle formed of the both-end straight line connecting both ends of base lines of three reflective lateral faces constituting the reflection elements ranges between 35 and 75°.

13. (Withdrawn) The retroreflective article according to claim 12, wherein an internal angle of a base line triangle formed of the both-end straight line connecting both ends of base lines of three reflective lateral faces constituting the reflection elements ranges between 45 and 70°.

14. (Withdrawn) The retroreflective article according to claim 13, wherein the depth of at least one of planes (Sx, Sy, or Sz) formed of each base line group of the three-directional V-shaped groove groups (x, x, x,..., y, y, y,..., and z, z, z,...) is different from the depth of other planes.

15. (Withdrawn) The retroreflective article according to claim 13, wherein an x-directional V-shaped groove does not pass through the intersect (A or B) between y-directional and z-directional V-shaped grooves and is formed at a position having an offset (Δx) shown by the maximum distance between the x-directional groove

and a straight line connecting the intersects A and B, and the triangular-pyramidal cube-corner retroreflective element pair is an asymmetric pair.

16. (Withdrawn) The retroreflective article according to claim 10, wherein a one-side groove angle (GLx, GRx, GLy, GRy, GLz, or GRz) formed of a line decided when a plane vertically intersecting with the both-end straight line intersects with the reflective lateral face and a V-groove vertical plane (Ux, Uy, or Uz) vertical to a common plane (S-S') and including the both-end straight line do not form a constant angle with the maximum deviation of 0.0001 to 0.1° from a normal one-side groove angle for forming a cube corner or a reflective lateral face does not form a plane.

17. (Withdrawn and Currently Amended) The retroreflective article according to claim 16, wherein ~~characterized in that~~ an internal angle of a base line triangle formed of the both-end straight line connecting both ends of base lines of three reflective lateral faces constituting the reflection elements ranges between 35 and 75°.

18. (Withdrawn) The retroreflective article according to claim 17, wherein an internal angle of a base line triangle formed of the both-end straight line connecting both ends of base lines of three reflective lateral faces constituting the reflection elements ranges between 45 and 70°.

19. (Withdrawn) The retroreflective article according to claim 18, wherein the depth of at least one of planes (S_x , S_y , or S_z) formed of each base line group of the three-directional V-shaped groove groups (x, x, x, \dots , y, y, y, \dots , and z, z, z, \dots) is different from the depth of other planes.

20. (Withdrawn) The retroreflective article according to claim 18, wherein an x-directional V-shaped groove does not pass through the intersect (A or B) between y-directional and z-directional V-shaped grooves and is formed at a position having an offset (Δx) shown by the maximum distance between the x-directional groove and a straight line connecting the intersects A and B, and the triangular-pyramidal cube-corner retroreflective element pair is an asymmetric pair.

21. (Currently Amended) A retroreflective article, said retroreflective article comprising:

(i) plural triangular-pyramidal cube-corner retroreflective element pairs formed of parallel V-shaped groove groups (x, x, x, \dots , y, y, y, \dots , and z, z, z, \dots) from three directions of x direction, y direction, and z direction and set on a common plane ($S-S'$) ~~decided~~ defined by base line groups of the parallel V-shaped groove groups, in which

one-side groove angle (GLx, GRx, GLy, GRy, GLz, or GRz) formed
between

a cross line between

~~a plane vertical to the common plane (S-S') and a V-groove vertical~~
~~plane (Svx, Svy, or Svz) which includes the base line of a V-shaped~~
~~groove and perpendicular to said the common plane (S-S'), and a~~
reflective lateral face (a1, b1, c1, a2, b2, or c2), a plane vertical to the
common plane (S-S') and to a V-groove vertical plane (Svx, Svy, or
Svz) which includes the base line of a V-shaped groove and is vertical
to the common plane (S-S'), and a reflective lateral face (a1, b1, c1,
a2, b2, or c2) containing the base line of the V-shaped groove

and the V-groove vertical plane

does not form a constant angle in the reflective lateral face but the lateral
face forms a curved and/or multiple surface, or

(ii) plural triangular-pyramidal cube-corner retroreflective element pairs
formed of V-shaped groove groups (x, x, x,..., y, y, y,..., and z, z, z,...) arranged at equal
intervals from three directions and set on a common plane (S-S') decided by base line
groups of the V-shaped groove groups, in which the base line constituting any-directional
V-shaped groove in the retroreflective element pairs is a nonlinear base line which does not
form a linear trajectory and the reflective lateral face formed of the V-shaped groove forms
a curved and/or multiple surface.